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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/523,589	04/08/2005	Hideo Takahashi	46445	7579

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MANELLI DENISON & SELTER  
2000 M STREET NW SUITE 700  
WASHINGTON, DC 20036-3307

EXAMINER

BROWN, JENNINE M

ART UNIT PAPER NUMBER

1755

DATE MAILED: 12/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/523,589

Applicant(s)

TAKAHASHI ET AL.

Examiner

Jennine M. Brown

Art Unit

1755

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                                                                                      |                                                                                         |
|------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                                                          | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                                                 | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>2/4/05; 9/30/05</u> . | 6) <input type="checkbox"/> Other: ____.                                                |

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 3-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites both of the transitional phrases "containing" and "having" which makes the claim unclear as to what the scope of the coverage applicant intends using said claim language.

Claim 3 recites the limitation "content of sulfate group is not more than 0.1% by weight as calculated as SO<sub>4</sub>". There is insufficient antecedent basis for this limitation in claim 1. This claim is not further limiting.

Claim 4 recites the limitation "the surface of which is coated with at least one compound selected from an inorganic compound and an organic compound". There is insufficient antecedent basis for this limitation in claim 1. This claim is not further limiting. Claim 5 depends from claim 4 and therefore is also not further limiting of claim 1. Claim 6 depends from claim 5 and therefore is also not further limiting of claim 1. Claim 7 depends from claim 6 and therefore is not further limiting of claim 1. Claim 8 depends from claim 4 and therefore is not further limiting of claim 1. Claim 9 depends on claim 9 and therefore is not further limiting of claim 1.

Claim 11 recites the limitation "hydrous titanium oxide has a particle diameter of 0.001-0.01 um". There is insufficient antecedent basis for this limitation in claim 10. Furthermore applicant is limiting the preamble of the claim and not the applicant's intended claim method. This claim does not properly further limit claim 11.

### ***Claims Analysis***

The transitional term "comprising" is synonymous with "containing" and "having" therefore it is inclusive or open-ended and does not exclude additional, unrecited elements or method steps. See MPEP 2111.03.

### ***Claim Rejections - 35 USC § 102/Claim Rejections - 35 USC § 103***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-9 and 12-17 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Chopin, et al. (US 6187438 B1).

See entire document. Regarding claims 1-7 :

Chopin, et al. disclose an anatase titanium dioxide pigment having an average particle diameter in the range of 0.2-0.4  $\mu\text{m}$  (col. 7, l. 50-53) and high purity (col. 1, l. 31-33). Chopin, et al. disclose covered particles of titanium dioxide with at least one cerium and/or iron compound precipitated on the surface of anatase titanium dioxide particles to provide at least one metal oxide, hydroxide or hydroxide oxide precipitated on the surface thereof (col. 1, l. 31-52) or alkaline silicon salt or aluminum hydroxide are also envisioned as being precipitated thereon (col. 5, l. 3-15) wherein the ratio of the coating to the titanium dioxide is within the range of 0.05-15% by weight (col. 2, l. 58-65). Organic coatings are also disclosed (col. 10, l. 4-col. 11, l. 30). The anatase titanium dioxide has utility in paint, varnishes, coverings and plastics (col. 1, l. 54-55).

The whiteness is a direct correlation to the amount of anatase titanium dioxide in the composition and it would necessarily follow that this property of the material and the crystal amount should be 100% based on the seed material which is used and the language of the prior art which states that the titanium dioxide is anatase. The prior art appears to disclose the invention as claimed on the basis of property characteristics which either anticipate or render the claimed product obvious therefore, the burden of proof that it does or does not shifts to the applicant as in *In re Best* 195 USPQ 430, 433 (CCPA 1877).

Regarding claims 12-17 :

Furthermore, Chopin, et al. disclose said anatase titanium dioxide pigment having the properties disclosed herein above, dispersed in resin materials (col. 16, l. 1-12) such as those used for plastics and paint (col. 1, l. 54-55) wherein said pigment is present between 1-10% by weight in the final composition (col. 17, l. 6-9) wherein the polymers (col. 14, l. 30-col. 15, l. 24) are present in amount from 0.01-10% by weight (col. 14, l. 43-45). The amounts of said pigment in said binder would have been obvious and the use of the resin in an ink formulation, paint formulation or a plastic resin component are not germane to the resin composition's patentability, especially since the relative amounts are the same based on weight percentage.

Claims 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chopin, et al. (US 6187438 B1) in view of Duyvesteyn, et al. (US 6548039 B1).

See entire document. Chopin, et al. disclose applicant's method of producing anatase titanium dioxide comprising calcining hydrolyzed titanium compound in the presence of a phosphoric acid compound and an alkali metal salt (col. 6, l. 1-col. 7, l. 34) and the titanium dioxide has a particle diameter of less than 8 nm, preferably between 3 and 5 nm wherein the reference specifically states that it is possible to precisely control the final size of the titanium dioxide particles, a level of seeds being associated with particle size (col. 7, l. 49-col. 8, l. 37). Chopin, et al. do not specifically state that the calcination temperature is within applicant's claimed range. Duyvesteyn, et al. cures the deficiency of Chopin, et al. by disclosing said calcination temperature of the pigment if it were to be used as a pigment only for the final product. Duyvesteyn, et al. disclose in Figure 2 a method of spray hydrolysis, calcination, milling and finishing to produce a TiO<sub>2</sub> pigment wherein the pigment is calcined between 500-1000 °C, preferably 800-1000 °C, and that after calcination contains greater than 99.5% of anatase (col. 5, l. 34-42; col. 6, l. 21-27). It would have been obvious to one of ordinary skill in the art to calcine before or after subsequent addition of additional inorganic and/or organic compounds as disclosed in Chopin, et al. therefore the final product produced by the intermediate step disclosed in Duyvesteyn, et al. would have been an obvious modification depending on the final product to be produced (e.g., raw pigment, cosmetic, varnish or polymeric materials).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennine M. Brown whose telephone number is (571)


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272-1364. The examiner can normally be reached on M-R 9:30 AM - 7:30 PM; Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo can be reached on (571) 272-1233. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

jmb

  
J.A. LORENGO  
SUPERVISORY PATENT EXAMINER